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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/526,541

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Volker Thole

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WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C.

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SUITE 340

RESTON, VA 20190

EXAMINER

THEODORE, MAGALI P

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/526,541	<b>Applicant(s)</b> THOLE ET AL.	
	<b>Examiner</b> Magali P. Théodore	<b>Art Unit</b> 1791	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/30/05.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/3/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**Method for the Production of Fire-Resistant Wood Fiber Moldings**

Examiner: Théodore

Art Unit: 1791

SN: 10/526,541

June 4, 2008

***Claim Objections***

1. Claims are objected to because of the following informalities:

Claims 1 and 3 refer to "('fibrous materials' below)," indicating that "fibrous materials" thenceforth denotes "wood fibers or other lignocellulosic fibrous materials." Likewise, Claims 1 and 3 refer to "('water glass' below)," indicating that 'water glass' thenceforth denotes "potassium and/or sodium silicates." This notation is confusing. It is suggested that Applicant rewrite these recitations as "fibrous materials consisting of wood fibers or other lignocellulosic materials" and "water glass comprising potassium or sodium silicates."

Claim 10 is missing the word "or" in the phrase "before or after its addition to the fibrous materials" as it appears in the specification [p 10 ln 6].

Appropriate correction is required.

2. Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 9 recites the use of a water glass adhesive. Claim 9 depends on claim 1, which recites the use of potassium or sodium silicates water glass as an adhesive.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the dry method" in line 4. There is insufficient antecedent basis for this limitation in the claim. For the sake of compact prosecution, the recitation has been interpreted as "the fibrous materials being supplied in a stream of air."

Claim 6 recites a range of "5 % - 40 %, preferable 10 % - 30 %." A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86

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USPQ 481 (Bd. App. 1949). In the present instance, claim 6 recites the broad recitation 5 % to 40 %, and the claim also recites 10 % to 30 % which is the narrower statement of the range/limitation. For the sake of compact prosecution, the recitation has been interpreted as "5 % to 40 %."

Claims 7 and 8 recites "the chips." Claim 7 and 8 depends on claim 1, which does not recite chips. For the sake of compact prosecution, the recitation has been interpreted as "the raw material from which the fibrous materials are derived."

Claim 8 recites a "the cooking process disintegrating the fibrous materials." Claim 8 depends on claim 1, which does not recite a cooking process. For the sake of compact prosecution, the recitation has been interpreted as "the method as claimed in claim 1, wherein the fibrous material is derived from raw material and the water glass is added either before or during the defibering process or into a transport element of a defibering apparatus."

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ljungbo (WO 92/04169 A1) in view of Gäth et al. (DE 1127270 A1) and Moyes et al. (US 2002/0100996). All references to Gäth et al. are to the translation provided.

Regarding claims 1-2, Ljungbo discloses providing wood fibers in an air-stream (p 1 ¶ 2 ln 4-6), adding spray-dried sodium silicate water glass (p 3 example 1 ln 4) to wood fibers (p 2 ln 1), mixing them to form a fibrous nonwoven material, and compressing that material and curing it in the closed press (p 3 example 1 ln 8-10).

Ljungbo does not specify mixing or curing temperatures. However, Gäth et al. establish these as result-effective parameters by teaching that the mixing temperature determines the extent to which the water glass foams while mixing (p 4 ¶ 1 ln 6-8) and that the curing temperature should be set according to the water content of the mixture

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(p 4 ¶ 2 ln 7-9). Gäth teaches mixing below 140 °C, which encompasses the 30-95 °C range recited by claim 1 and the 40-75 °C range recited by claim 2. Gäth also teaches curing low-water mixtures above 170 °C, which falls within the range (greater than 80 °C) recited by the claim. Therefore it would be obvious to an ordinary artisan to optimize the mixing and curing temperatures in the method taught by Ljungbo because Gäth et al. establish these as result-effective parameters and teaches temperatures within the ranges recited by the claim. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” MPEP2144.05 [R-5], In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Ljungbo does not specify the density of the fibrous nonwoven material. However, Moyes et al. teach compressing a fibrous nonwoven material to a density of 350-600 kg/m<sup>3</sup> to make an inexpensive yet effective core for a fire door (¶ 0021 ln 1-5) and compressing the same material to 900-1,300 kg/m<sup>3</sup> to make fire-door support structures capable of holding threaded fasteners (¶ 0021 ln 5-10). Therefore it would be obvious to an ordinary artisan to compress the fibrous nonwoven material taught by Ljungbo to densities ranging from 350 kg/m<sup>3</sup> to 1,250 kg/m<sup>3</sup> because Moyes et al. teach densities of 350 kg/m<sup>3</sup> to 1,300 kg/m<sup>3</sup> as required by the product's intended use.

Regarding claims 3-4, Ljungbo discloses providing wood fibers in an air stream (p 1 ¶ 2 ln 4-6), adding spray-dried sodium silicate water glass (p 3 example 1 ln 4) to wood fibers (p 2 ln 1), mixing them to form a fibrous nonwoven material, and compressing that material and curing it in the closed press (p 3 example 1 ln 8-10).

Ljungbo does not teach the presence of water vapor in the mixing step. However, Ljungbo teaches controlling the moisture content of the wood fibers (p 3 example 1 ln 7 and p 3 example 2 ln 4-5). Adding steam hydrates the wood fibers, reversing the loss of moisture to the air stream which carries them. Therefore it would be obvious to an ordinary artisan to add steam the air stream taught by Ljungbo because Ljungbo teaches controlling the fibers' moisture content and steaming the fibers would maintain their humidity.

Ljungbo does not specify mixing or curing temperatures. However, Gäth et al. establish these as result-effective parameters by teaching that the mixing temperature determines the extent to which the water glass foams while mixing (p 4 ¶ 1 ln 6-8) and that the curing temperature should be set according to the water content of the mixture (p 4 ¶ 2 ln 7-9). Gäth teaches mixing below 140 °C, which falls within the 105-180 °C range recited by claim 1 and the 110-150 °C range recited by claim 2. Gäth also teaches curing low-water mixtures above 170 °C, which falls within the range (greater than 80 °C) recited by the claim. Therefore it would be obvious to an ordinary artisan to optimize the mixing and curing temperatures in the method taught by Ljungbo because Gäth et al. establish these as result-effective parameters and teaches temperatures within the ranges recited by the claim. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." MPEP2144.05 [R-5], In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).



Ljungbo does not specify the density of the fibrous nonwoven material. However, Moyes et al. teach compressing a fibrous nonwoven material to a density of 350-600 kg/m<sup>3</sup> to make an inexpensive yet effective core for a fire door (¶ 0021 ln 1-5) and compressing the same material to 900-1,300 kg/m<sup>3</sup> to make fire-door support structures capable of holding threaded fasteners (¶ 0021 ln 5-10). Therefore it would be obvious to an ordinary artisan to compress the fibrous nonwoven material taught by Ljungbo to densities ranging from 350 kg/m<sup>3</sup> to 1,250 kg/m<sup>3</sup> because Moyes et al. teach densities of 350 kg/m<sup>3</sup> to 1,300 kg/m<sup>3</sup> as required by the product's intended use.

Regarding claim 5, Ljungbo discloses a mixture made from 100 parts wood fiber and 25 parts dry water glass, the wood fibers having a moisture content of 30 % prior to injection into the air stream (p 3 example 1 ln 3-7). If the ratio of water to dry fiber in the wood fiber is 70:30, then every 100 parts of wood brings with it 43 parts of water ( $30 \times 100 \div 70 = 43$ ). Therefore, the mixture, which forms the nonwoven material has a moisture content less than 26 % ( $43 / (100 + 25 + 43) = 26 \%$ )--less than 26 % because, in the absence water vapor, water is lost to the air stream (p 3 example 1 ln 3) which carries the wood fibers. This upper limit differs from the 25 % limited recited by the claim by only one percentage point. Ljungbo also teaches varying the moisture content of the wood fibers in different applications of his invention (p 3 example 1 ln 7 and p 3 example 2 ln 4-5). Therefore it would be obvious to an ordinary artisan to vary the moisture content of the fibers such the moisture content of the fibrous nonwoven material is less than 25 % because Ljungbo teaches a fibrous nonwoven containing less

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than 26 % and Ljungbo teaches varying the moisture content of the fibers used in the mixture.

Regarding claim 6, Ljungbo teaches adding 25 parts water glass to 100 parts wood fibers, the wood fibers having a moisture content of 30 % (p 3 ln 4-7)

Regarding claims 7, Ljungbo teaches adding all the water glass after the defibering process (p 3 example 1).

Regarding claim 8, Ljungbo et al. do not teach adding the water glass either into the defibering process or into a transport element of the defibering apparatus.

However, adding the water glass before, during or after defibering has not been shown to produce unexpected results. While Applicant's specification explains that the water glass does not lose efficacy from being added early in the process, it is not clear that there is any benefit, either. Therefore, it would be obvious to an ordinary artisan to add the water glass at any time. Unless it produces unexpected results, the order of the steps in a method and the order in which ingredients are added does not impart patentable distinction to an invention. In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930)

Regarding claim 9, Ljungbo teaches using a silicate water glass (p 2 ¶ 3 ln 1) as a "glue powder" (p 1 ¶ 7 ln 1).

Regarding claim 10, Ljungbo teaches adding a hardener, a conventional additive, to the water glass before or after adding the wood fibers (p 2 ¶ 5).

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9. Claims 11-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Ljungbo in view of Gäth et al. and Moyes et al. as applied to claims 1-10 above and further in view of Nürnberger et al. All references to Nürnberger et al. (DE 19500653 A1) are to the translation provided.

Ljungbo, Gäth et al. and Moyes et al. do not indicate the use of acid formers. However, Nürnberger et al. teach the use of carbon dioxide, an acid gas, to harden molded mixtures of wood fibers and water glass (p 9 ¶ 3 - p 10 ln 2, p 11 ln 1-3). Therefore, it would be obvious to an ordinary artisan to add to the water glass taught by Ljungbo, Gäth et al. and Moyes et al. a substance to form carbon dioxide or another acid gas because Nürnberger et al. teach using carbon dioxide as a hardener.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571) 270-3960. The examiner can normally be reached on Monday through Friday 9:00 a.m. to 5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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